

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-42. (Cancelled)

43. (Currently Amended) A device for minimally invasive medical treatment in a body of a patient, comprising:

a tubular member having a proximal end and a distal end;

a cryo therapy apparatus connected to the distal end of the tubular member, wherein the cryo therapy apparatus comprises a first balloon and a second balloon, the first and second balloons arranged to define an inner chamber and an outer chamber, at least a portion of the inner chamber being interior of the first balloon and at least a portion of the outer chamber being interior of the second balloon and exterior of the first balloon, a surface of the first balloon configured to retain a coolant within the inner chamber and a surface of the second balloon configured to retain the coolant within the cryo therapy apparatus if the first balloon fails; and

an optical sensor disposed within the cryo therapy apparatus for [[to]] monitoring temperatures created by use of the cryo therapy apparatus from within the cryo therapy apparatus, the optical sensor coupled to a retractable member capable of moving independently of the cryo therapy apparatus;

wherein the cryo therapy apparatus is sized and arranged for vascular introduction.

44. (Previously Presented) The device of claim 43, further comprising a temperature quantification device in communication with the optical sensor.

45. (Cancelled)

46. (Previously Presented) The device of claim 43, wherein the optical sensor is positioned to observe ice or ice ball formation created by the cryo therapy apparatus.

47-48. (Cancelled)

49. (Previously Presented) The device of claim 43, wherein the optical sensor is disposed at least partially within a lumen defined in the tubular member.

50-51. (Cancelled)

52. (Previously Presented) A device for minimally invasive medical treatment in a body of a patient, comprising:

a tubular member having a proximal end and a distal end;

a cryo therapy apparatus connected to the distal end of the tubular member and comprising a first balloon and a second balloon, the first and second balloons arranged to define an inner chamber and an outer chamber, at least a portion of the inner chamber being interior of the first balloon and at least a portion of the outer chamber being interior of the second balloon and exterior of the first balloon, a surface of the first balloon configured to retain a coolant within the inner chamber and a surface of the second balloon configured to retain the coolant within the cryo therapy apparatus if the first balloon fails and prevent loss of the coolant to the body of the patient; and

an optical imaging apparatus near the distal end of the tubular member to monitor temperatures resulting from use of the cryo therapy apparatus,

wherein the cryo therapy apparatus is sized and arranged for vascular introduction.

53-54. (Cancelled)

55. (Withdrawn) A method of monitoring the temperature of an area of interest during a cryoplasty procedure, comprising:

providing a temperature monitoring device including a tubular member having a proximal end and a distal end, a cryo therapy apparatus connected to the distal end of the tubular member, and an optical sensor near the distal end of the tubular member in a vascular system;

advancing the temperature monitoring device to an area of interest;
cooling at least a portion of the area of interest with the cryo therapy apparatus; and
measuring temperature at a location within the area of interest with the temperature monitoring device,
wherein the area of interest comprises a vascular area.

56. (Cancelled)

57. (Withdrawn) The method of claim 55, further comprising observing ice or ice ball formation created by the cryo therapy apparatus.

58. (Withdrawn) The method of claim 55, wherein the temperature is measured while performing cryo balloon therapy.

59. (Withdrawn) The device of claim 43, wherein the optical sensor comprises an infrared optic sensor.

60. (Withdrawn) The device of claim 43, further comprising a fluorescing marker band positioned to permit locating the device during an internal medical procedure.

61. (Withdrawn) The device of claim 43, wherein the temperature sensor comprises a detector in predetermined positional relationship to an emitter.

62. (Withdrawn) The device of claim 43, wherein the cryo therapy apparatus comprises an expandable balloon defining an interior volume in fluid communication with a coolant supply lumen.

63. (Withdrawn) The device of claim 62, wherein the balloon is rigidly attached to the tubular member.

64. (New) The device of claim 52, wherein the optical imaging apparatus monitors temperatures resulting from use of the cryo therapy apparatus from within the cryo therapy apparatus.